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SOURCE Radio, No 12, pp 4-6, 12.

DISCUSS USSR RADIO TUBE NEEDS

[This report represents a digest of three articles on types of radio tubes needed in the USSR, a problem which Soviet engineers consider to be of utmost importance to the radio industry. In the first article, A. Severov advanced his views on tube types needed. In the second article, the editors of the publication summarize readers' ideas, evaluate them, and advance some of their own. In the third article, summaries of reports presented at a meeting of one of the sections of the Ministry of the Communications Equipment Industry are given. A digest of the articles follows.]

One of the main points made by A. Severov, Chief Engineer, Main Administration of Radiofication of the Ministry of Communications, was that production of poor tubes should not be stopped until industry had found better replacements. A case in point was the discontinuation of the 6K8 triode-hexode converter with no replacement in sight, even though the need for this tube is undoubtedly great. Severov stated the extended use of combined tubes such as the 6K8 should be considered, but only if the use of one expensive tube instead of two cheap tubes could be justified. In addition, Severov urged the production of more economical miniature tubes for battery receivers. He cited as a bad example the 2P1P output pentode with its filament current of 120 ma, plate current of 9 ma, and maximum output power of 0.27 w. He advocated matching filament voltage of miniature tubes with the discharge characteristic of the A batteries used with them. By way of example, Severov stated that most miniature tubes have a filament voltage range from 1.4 to 0.95 v, while Type MVD filament batteries have a discharge characteristic from 1.4 to 0.8 v.

In their article, the editors stated that the production of combined tubes, urged by many readers, is at present too complicated and expensive to be popular. According to the editors, there is no justification in the protests against elimination of the 6G7, 6K7, 6P3, 6F6, VO-230, and VO-188 tubes, among others, on the grounds that a great deal of equipment would have

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to be redesigned, because production of these tubes will be continued for several years, even though they are not on the list of tubes needed. The editors point out that sufficient reserves of these tubes will be made available for equipment using them. Concerning battery receivers, most letters to the editors made the following four recommendations: (1) reduction of the rated filament voltage from 1.2 v to 1 v to make better use of battery capacity; (2) production of magic-eye tubes for battery receivers; (3) reduction of plate voltage; and (4) production of two-grid (virtual-cathode) tubes. The editors approved the first and third recommendations, disapproved the second, and withheld decision on the fourth.

In addition to the readers' suggestions, the editors made some recommendations of their own, the first of which was the use of base-less miniature tubes for battery and line receivers. They recommended the following dimensions for preamplification stages and output tubes: diameter 19 mm, height 54 mm, and flat bottom with seven pins; for more complex or powerful tubes, the diameter could be increased to 22 mm and the height to 72 mm with ten pins used on the base. The editors also urged the production of ac/dc receivers and the required tubes, including ballast tubes. The cathode-to-heater insulation should be improved considerably in tubes designed for these receivers. Miniature tubes with 0.15 amp filament current, such as the 12BE6, 12BA6, 50B5 or 50C5, and 35W4, would satisfy the requirements for ac/dc receivers. The editors also urged that serious consideration be given to the development of a double pentode for Class AB₂ power amplification, approaching B₂ operation. Such a tube would make possible a really economical low-power amplifier for wired networks.

At a joint meeting [date not given] of the Vacuum-Tube and Broadcasting Sections of the Scientific-Technical Council, Ministry of the Communications Equipment Industry, V. I. Yegiazarov, Chief Engineer of one of its administrations, proposed a list of tubes with improved characteristics which should be developed for battery and line receivers. He also touched on the problem of changing to a new tube design which would permit a higher degree of automatic control in production and thus make possible mass production of tubes. A. K. Godzevskiy, representing the Institute of Radio Reception and Acoustics, discussed the problems confronting vacuum-tube designers with particular reference to efficient cathodes, variable- μ tubes for af amplification, high- μ output tubes, etc. As a result of the work of the Scientific-Technical Council, a commission composed of representatives of plants producing electron tubes and receivers was appointed to draw up tables of prospective tube series for all broadcast receivers battery, line, and automobile.

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